



## Infectious disease, development, and climate change: A scenario analysis

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### Abstract:

We study the effects of development and climate change on infectious diseases in Sub-Saharan Africa. Infant mortality and infectious disease are closely related, but there are better data for the former. In an international cross-section, per capita income, literacy, and absolute poverty significantly affect infant mortality. We use scenarios of these three determinants and of climate change to project the future incidence of malaria, assuming it to change proportionally to infant mortality. Malaria deaths will first increase, because of population growth and climate change, but then fall, because of development. This pattern is robust to the choice of scenario, parameters, and starting conditions; and it holds for diarrhoea, schistosomiasis, and dengue fever as well. However, the timing and level of the mortality peak is very sensitive to assumptions. Climate change is important in the medium term, but dominated in the long term by development. As climate can only be changed with a substantial delay, development is the preferred strategy to reduce infectious diseases even if they are exacerbated by climate change. Development can, in particular, support the needed strengthening of disease control programs in the short run and thereby increase the capacity to cope with projected increases in infectious diseases over the medium to long term. This conclusion must, however, be viewed with caution, because development, even of the sort envisioned in the underlying socio-economic scenarios, is by no means certain.

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### Resource Description

#### Climate Scenario :

specification of climate scenario (set of assumptions about future states related to climate)

Special Report on Emissions Scenarios (SRES)

#### Exposure :

weather or climate related pathway by which climate change affects health

Ecosystem Changes

#### Geographic Feature:

resource focuses on specific type of geography

None or Unspecified

#### Geographic Location:



resource focuses on specific location

Non-United States

**Non-United States:** Africa

**African Region/Country:** African Region

**Other African Region:** Sub-Saharan Africa

**Health Impact:**

specification of health effect or disease related to climate change exposure

Developmental Effect, Infectious Disease, Injury

**Developmental Effect:** Reproductive

**Infectious Disease:** Foodborne/Waterborne Disease, Vectorborne Disease

**Foodborne/Waterborne Disease:** Schistosomiasis, Other Diarrheal Disease

**Vectorborne Disease:** Mosquito-borne Disease

**Mosquito-borne Disease:** Dengue, Malaria

**Mitigation/Adaptation:**

mitigation or adaptation strategy is a focus of resource

Adaptation

**Model/Methodology:**

type of model used or methodology development is a focus of resource

Cost/Economic, Exposure Change Prediction

**Population of Concern:** A focus of content

**Population of Concern:**

populations at particular risk or vulnerability to climate change impacts

Children, Low Socioeconomic Status

**Resource Type:**

format or standard characteristic of resource

Research Article

**Timescale:**

time period studied

Long-Term (>50 years)

**Vulnerability/Impact Assessment:**

resource focus on process of identifying, quantifying, and prioritizing vulnerabilities in a system

# Climate Change and Human Health Literature Portal

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